CITY OF BURLEY (PWS 5160008)
SOURCE WATER ASSESSMENT FINAL REPORT

April 2, 2002

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area, sensitivity factors associated with the wells, and aquifer characteristics.

This report, *Source Water Assessment for the City of Burley,Burley, Idaho* describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The City of Burley drinking water system (PWS 5160008) consists of four ground water well sources; Well #2, Well #3, Well #4, and Well #5.

The only inorganic contaminants (IOCs) detected in the sampled water are sodium and nitrate. Nitrate levels in Well #2 have been consistently below 2.0 mg/L. Wells #4 and #5 do not show a consistent trend in nitrate values, having highs of 3.9 mg/L (Well #4) and 3.63 mg/L (Well #5). The Maximum Contaminant Level (MCL) for nitrate is 10 mg/l. Though the nitrate concentrations do not currently approach the MCL, Well #3 does show an upward trend of nitrate concentrations (statistical significance of 90%) with a high value of 3.3 mg/L in 1998.

Volatile organic contaminants (VOCs) of total trihalomethanes (THM) were detected in Wells #2 and #5 in April 1994, Well #5 in July 1998, and Wells #3 and #5 in December 1999. These contaminants are associated with the chlorination process and not the actual ground water. No synthetic organic contaminants (SOCs) or microbial contaminants have been detected in the wells.

Though each of the city wells has different delineations, the delineations have a large number of common potential contaminant sources. There are also well logs and sanitary surveys for each of the four wells. Land use practices covered by the delineations vary from urban to irrigated agriculture. The construction and maintenance of the wells as well as the low hydrologic sensitivity rating of the area lead to an overall susceptibility rating of moderate for all the wells and all the contaminants.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the City of Burley, source water protection activities should first focus on continued vigilance at maintaining the high standards of housekeeping and care that have been documented (DEQ, 1997). The City of Burley should be aware that current disinfection practices have led to the detection of THM in the water in 1994, 1998, and 1999. This should be carefully monitored. Any spills from the potential contaminant sources listed in Tables 1 through 3 should be carefully monitored, as should any future development in the delineated areas. Other practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated source water areas should be implemented. Most of the designated areas are outside the direct jurisdiction of the City of Burley. Partnerships with state and local agencies and industry groups should be established and are critical to success. Due to the time involved with the movement of ground water, source water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any source water protection plan because the delineations show large areas of urban land use. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the U.S. Environmental Protection Agency. Many transportation corridors transect the delineations. Therefore, the Department of Transportation should be included in protection activities. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A community with a fully developed source water protection program will incorporate many strategies, and are regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR THE CITY OF BURLEY, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings, used to develop this assessment, is also attached.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess the over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of this assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treating a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The City of Burley wells are community wells that serve approximately 9,500 people through approximately 3,050 connections. The public drinking water system for the City of Burley is currently comprised of four wells: Well #2 (14th & Albion), Well #3, Well #4, and Well #5. Wells #2, #3, and #5 are located in Cassia County, in various locations in or near the City of Burley, and Well #4 is located north of Snake River in Minidoka County (Figure 1).

The main IOC water chemistry issue recorded in the public water system is nitrate, though at levels less than ½ the current MCL. Total trihalomethanes, a VOC associated with chlorination practices, were detected in Wells #2 and #3 (April 1994), Well #5 (July 1998), and Wells #3 and #5 (December 1999). No SOCs or microbial contaminants were detected in the wells.

County level nitrogen fertilizer use, county level herbicide use, and total county level ag-chemical use are rated as high for the area. In addition, the delineations fall within a nitrate priority area and an SOC priority area for the pesticide Atrazine.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. For Wells #2, #3, and #5, DEQ used a refined computer model approved by the EPA in determining the time-of-travel (TOT) zones for water associated with the Goose Creek – Golden Valley aquifer south of the Snake River in the vicinity of the City of Burley. Washington Group, International (WGI) was contracted by DEQ to create the delineation for Well #4. The computer model used site-specific data, assimilated by DEQ and WGI from a variety of sources including local area well logs and hydrogeologic reports summarized below.

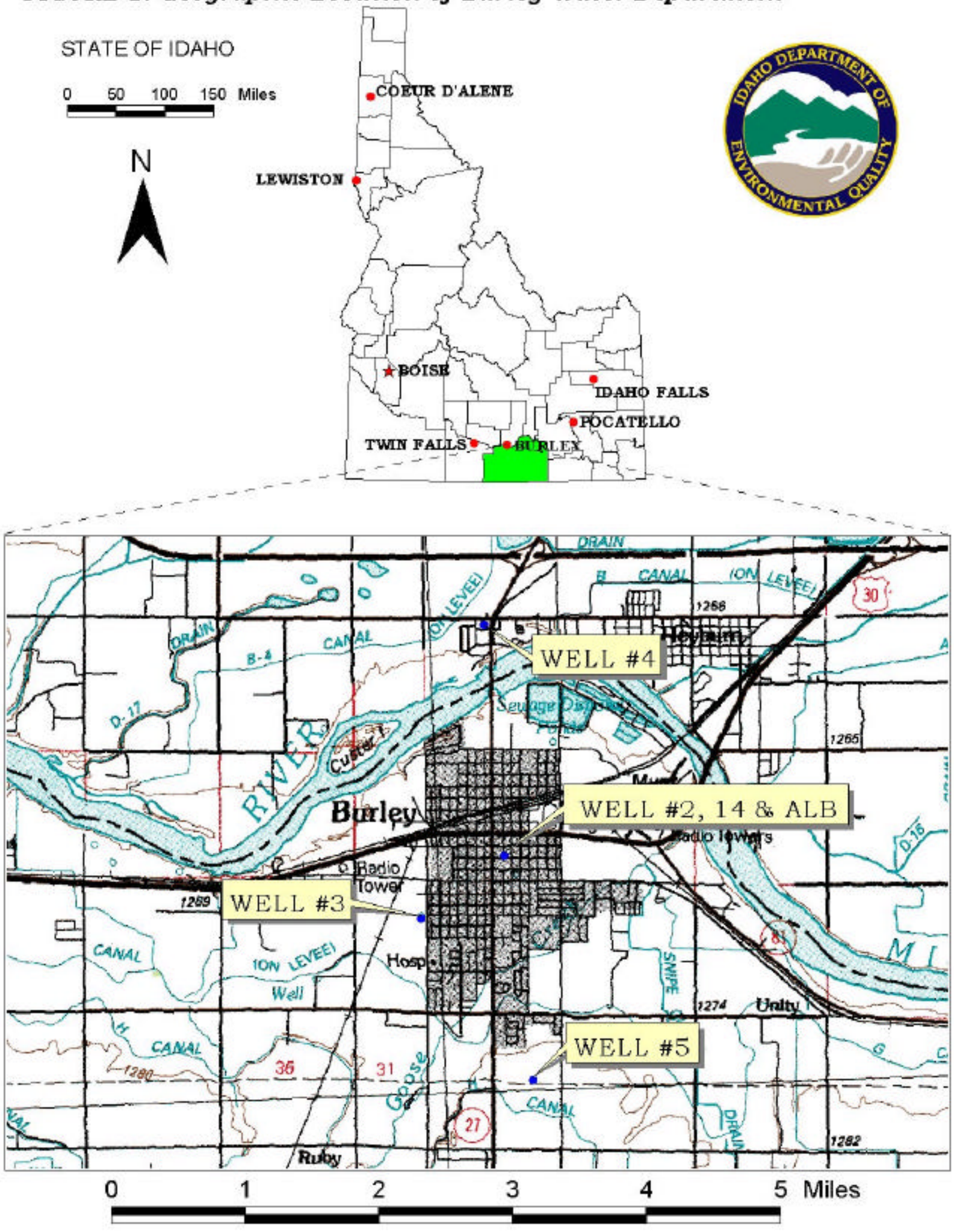
Goose Creek – Golden Valley aquifer

Wells #2, #3, and #5 extract water from basalt of the Snake River Group to the northeast and east and possibly the Idavada Volcanics to the south. The Snake River Group consists of basalt flows with thicknesses ranging from a few to several tens of feet. Contacts between the flows and in rubbly zones are the best water producers. The basalt overlies the Idavada Volcanics.

The Idavada Volcanics unit, locally referred to as rhyolite, consists of welded ash and tuff, rhyolite, and some basalt flows. The flows are dense and are commonly reddish-brown, gray, or black. The tuff and ash beds are fine to coarse grained, light colored, and commonly water laden (Crosthwaite, 1969).

Twenty-four years of records since 1964 set the average yearly rainfall in Burley at 8.6 inches (Crosthwaite, 1969). The Albion Range and the fault zone at its base bound the plain on the southeast and the Rock Creek Hills bound the plain on the southwest. The lowland slopes northward from an altitude of about 4,600 feet at Oakley to 4,150 feet at Burley (Crosthwaite, 1969).

FIGURE 1. Geographic Location of Burley Water Department



The regional Snake River Group basalts to the east and northeast mainly influenced the City of Burley delineation modeling. However, there was also a southerly component of the flow from the fault zone along the Albion Range. Previous modeling (Garabedian, 1992) in the area was used as a guide.

The delineated source water assessment areas for the City of Burley Wells #2, #3, and #5 can best be described as pie slices extending east of the wells, varying from 1 to 6 miles wide and about 5 miles long (Attachment A – Figures 2 and 4). The data used by DEQ in determining the source water assessment delineation areas are available upon request.

SW ESRP aquifer

The ESRP is a northeast trending basin located in southeastern Idaho. The 10,000 square miles of the plain are filled primarily with highly fractured layered Quaternary basalt flows of the Snake River Group, which are intercalated with sedimentary rocks along the margins (Garabedian, 1992, p. 5). Individual basalt flows range from 10 to 50 feet thick, averaging 20 to 25 feet thick (Lindholm, 1996, p. 14). Basalt is thickest in the central part of the eastern plain and thins toward the margins. Whitehead (1992, p. 9) estimates the total thickness of the flows to be as great as 5,000 feet. A thin layer (0 to 100 feet) of windblown and fluvial sediments overlies the basalt.

The layered basalts of the Snake River Group host one of the most productive aquifers in the United States. The aquifer is generally considered unconfined, yet may be confined locally because of interbedded clay and dense unfractured basalt (Whitehead, 1992, p. 26). Whitehead (1992, p. 22) reports that well yields of 2,000 to 3,000 gal/min are common for wells open to less than 100 feet of the aquifer. Lindholm (1996, p. 18) estimates aquifer thickness to range from 100 feet near the plain's margin to thousands of feet near the center. Models of the regional aquifer have used values ranging from 200 to 3,000 feet to represent aquifer thickness (Cosgrove et al., 1999, p. 15).

Regional ground-water flow is to the southwest paralleling the basin (Cosgrove et al., 1999; deSonneville, 1972, p. 78; Garabedian, 1992, p. 48; and Lindholm, 1996, p. 23). Reported water table gradients range from 3 to 100 ft/mile and average 12 ft/mile (Lindholm, 1996, p. 22). Gradients steepen at the plain's margin and at discharge locations.

The majority of aquifer recharge results from surface water irrigation activities (incidental recharge), which divert water from the Snake River and its tributaries (Ackerman, 1995, p. 4, and Garabedian, 1992, p. 11). Natural recharge occurs through stream losses, direct precipitation, and tributary basin underflow.

The Southwest Margin of the ESRP hydrologic province is the regional aquifer's primary discharge area. Interpretation of well logs indicates that a 1- to 23-foot-thick layer of sediment overlies the fractured basalt aquifer in Jerome County, and that an 8- to 410-foot-thick layer of sediment overlies the same aquifer in southern Minidoka and Power Counties. Published geologic maps of the Snake River Plain (Whitehead 1992, Plates 1 and 5) indicate there is 100 to 500 feet of Quaternary to Tertiary aged compacted to poorly consolidated sediments located in the Heyburn area (north of the Snake River near Burley). The saturated thickness of the regional basalt aquifer for the Southwest Margin is estimated to range from less than 500 feet near the Snake River to 1,500 feet near Minidoka.

A published water table map of the Kimberly to Bliss region of the aquifer (Moreland, 1976, p. 5) indicates that the ground-water flow direction in the Southwest Margin is similar to that depicted at the regional scale (e.g., Garabedian, 1992, Plate 4).

Annual average precipitation for the period 1951 to 1980 is 9.6 inches in both Twin Falls and Burley (Kjelstrom, 1995, p. 3). The estimated recharge from precipitation in the Southwest Margin ranges from less than 0.5 inch to more than 2 in./yr (Garabedian, 1992, p. 20). Kjelstrom (1995, p. 13) reports an annual river loss of 110,000 acre-feet to the aquifer for the 34.8-mile Minidoka-to-Milner reach of the Snake River. River gains of 210,000 acre-feet for the 21.5-mile Milner-to-Kimberly reach, and 880,000 acre-feet for the 20.4-mile Kimberly-to-Buhl reach are reported for the same period.

The delineated source water assessment area for the City of Burley Well #4 can best be described as a corridor extending to the east southeast of the well and ending at the Snake River. The delineation varies from ½ to 3 miles wide and about 7 miles long (Attachment A – Figure 3). The actual data used by WGI in determining the source water assessment delineation areas are available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and the City of Burley and from available databases.

The dominant land use outside the City of Burley area is irrigated agriculture. Land use within the immediate area of the wellheads consists of residential property, commercial and light industrial, and agricultural. Highway 30, State Highway 81, and the Eastern Idaho Railroad are major transportation corridors in the area. The Snake River also transects the area.

It is important to understand that a release may never occur from a potential source of contamination provided best management practices are used at the facility. Many potential sources of contamination are regulated at the federal level, state level, or both, to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the <u>potential</u> for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, such as educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A contaminant inventory of the study area was conducted in June and July of 2001. This involved identifying and documenting potential contaminant sources within the City of Burley Source Water Assessment Areas through the use of computer databases and Geographic Information System maps developed by DEQ. Jesse Mabry, the City of Burley Water Operator, confirmed this information.

Wells #2 and #3 share the same delineation. Wells #4 and #5 have separate delineations. Descriptions of the sites are found in Tables 1 through 3 and the locations relative to the sources are depicted in Figures 2 through 4 (Attachment A). The Well #2 and #3 (Table 1, Figure 2) delineation has 195 potential point sources. The Well #4 (Table 2, Figure 3) delineation has 20 potential point sources. The Well #5 (Table 3, Figure 4) delineation has 27 potential point sources.

These potential contaminant sources include leaking underground storage tank (LUST) sites, underground storage tank (UST) sites, commercial, industrial, and municipal businesses, sand and gravel pits, dairies, above ground storage tank (AST) sites, and Group 1 sites. Additionally, there are sites regulated by the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), the Resource Conservation Recovery Act (RCRA), the Superfund Amendments and Reauthorization Act (SARA), and the National Pollutant Discharge Elimination System (NPDES).

Highway 30, State Highway 81, the Eastern Idaho Railroad, and the Snake River are major sources that cross the delineations. If an accidental spill occurred in any of these sources, IOCs, VOCs, SOCs, or microbial contaminants could be added to the aquifer system.

Section 3. Susceptibility Analyses

The water system's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

The hydrologic sensitivity was low for all four wells (see Table 5). This reflects the poorly drained nature of the soil, a vadose zone composed of sand and clay, and the presence of thick fine-grained sediment layers retarding the downward movement of contaminants.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in Sanitary Surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

The City of Burley drinking water system consists of four wells that extract ground water for community uses. All four wells rated moderate susceptibility for system construction. The 1997 Sanitary Survey found that the wellhead and surface seal were maintained and protected from surface flooding for all the wells. Well logs for Well #2, Well #3, and Well #5 indicate the highest production interval is greater than 100 feet below the water table. Well casing and annular seal for all the wells do not extend into low permeable units (Table 4). Though the City of Burley wells may have met construction standards at the time of their installation, current well construction standards are stricter.

Table 4. City of Burley Well Construction Summary Information

Well	Depth (ft)	Casing: diameter/ thickness (in)	Casing: depth (ft)/ formation	Water Table Depth (ft)	Screened Interval (ft)	Surface seal: depth (ft)/ formation	Drill Year	Aquifer test rate (gpm)/ time (hr)
Well #2 (14th & Albion)	750	20/0.375, 16/0.375	465/Gravel & grey clay	236	465 – 750 open hole	23/Sand and gravel	1986	1500/2, 1900/3
Well #3	509	20/0.280, 16/0.250	442/basalt	226	442 – 509 open hole	NI/NI	1960	2100/6
Well #4	279	16/0.313	223/Black lava	184	223 – 279 open hole	NI/NI	1960	No test
Well #5	630	20/0.375, 16/0.280	419/Soft black lava	267	379 – 419, 419 – 630 open hole	40/Sandy clay and gravel	1977	2200/10

NI = no information was available

The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all Public Water Systems (PWSs) to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. Some of the requirements include casing thickness, well tests, and depth and formation type that the surface seal must be installed into. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Twelve-inch or greater diameter wells require a casing thickness of at least 0.375-inches. Well tests are required at the design pumping rate for 24 hours or until stabilized drawdown has continued for at least six hours when pumping at 1.5 times the design pumping rate. Each of the City of Burley wells received an additional point in the system construction category because they do not meet current well construction standards, although they may have at time of construction.

Potential Contaminant Source and Land Use

All four wells rated high for IOCs (i.e. arsenic, nitrate), VOCs (i.e. petroleum products), SOCs (i.e. pesticides), and microbial contaminants (i.e. bacteria). The large number of urban potential contaminant sites, as well as the local transportation corridors and the irrigated agricultural land contributed the largest numbers of points to the contaminant inventory rating. County level nitrogen fertilizer use, county level herbicide use, and total county level ag-chemical use are rated as high for all four wells. In addition, the delineations fall within a nitrate priority area and an SOC priority area for the pesticide Atrazine.

Final Susceptibility Rating

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well, despite the land use of the area, because a pathway for contamination already exists. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time-of-travel zone (Zone 1B) and much agricultural land contribute greatly to the overall ranking. In terms of total susceptibility, all four wells rate moderate for all categories.

Table 5. Summary of the City of Burley Susceptibility Evaluation

Source	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #2	L	H	H	H	H	M	M	M	M	M
Well #3	L	H	H	H	H	M	M	M	M	M
Well #4	L	H	H	H	H	M	M	M	M	M
Well #5	L	H	H	H	H	M	M	M	M	M

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

In terms of total susceptibility, all four wells rate moderate for all categories. Multiple commercial and industrial potential contaminant sources, agricultural land uses, high county wide nitrogen fertilizer use, high county wide herbicide use, Highway 30, State Highway 81, the Eastern Idaho Railroad, and the Snake River contributed the most land use points to the susceptibility rating. Low hydrologic sensitivity also contributed heavily to the overall scores.

The only IOCs detected in the sampled water are sodium and nitrate. Nitrate levels in Well #2 have been consistently below 2.0 mg/L. Wells #4 and #5 do not show a consistent trend in nitrate values, having highs of 3.9 mg/L (Well #4) and 3.63 mg/L (Well #5). The MCL for nitrate is 10 mg/l. Though the nitrate concentrations do not currently approach the MCL, Well #3 does show an upward trend of nitrate concentrations (statistical significance of 90%) with a high value of 3.47 mg/L in 2001.

In July 1994 and December 1999, the VOCs total trihalomethanes (THM) were detected in Well #2 and Wells #3 and #5, respectively. These contaminants are associated with the chlorination process and not the actual ground water. No SOCs or microbial contaminants have been detected in the wells.

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For the City of Burley, source water protection activities should first focus on continued vigilance at maintaining the high standards of housekeeping and care that have been documented (DEQ, 1997). The City of Burley should be aware that current disinfection practices have led to the detection of THM in the water in 1994, 1998, and 1999. This should be carefully monitored. Any spills from the potential contaminant sources listed in Tables 1 through 3 should be carefully monitored, including future development in the delineated areas. Practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated source water areas should be implemented. Most of the designated areas are outside the direct jurisdiction of the City of Burley. Partnerships with state and local agencies and industry groups should be established and are critical to success. Due to the time involved with the movement of ground water, wellhead protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any source water protection plan when delineations contain large urban land uses. Multiple resources are available to help communities implement protection programs, including the Drinking Water Academy of the U.S. Environmental Protection Agency. Since 3 to 4 transportation corridors transect the delineations, the Department of Transportation should be included in protection activities. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil and Water Conservation District, and the Natural Resources Conservation Service.

Assistance

Public water suppliers and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Twin Falls Regional DEQ Office	(208) 736-2190
State DEQ Office	(208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper (mlharper@idahoruralwater.com), Idaho Rural Water Association, at (208) 343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

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Attachment A

Delineation Figures and Potential Contaminant Tables

Table 1. City of Burley, Wells #2 and #3, Potential Contaminant Inventory

Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
1, 40	LUST - Site Cleanup Incomplete , Impact: GROUND WATER, UST - closed	0 - 3	Database Search	VOC, SOC
2, 19, 147	LUST - Site Cleanup Completed , Impact: Unknown, UST - closed, RCRA site	0 - 3	Database Search	IOC, VOC, SOC
3, 21	LUST - Site Cleanup Completed , Impact: Unknown, UST - open	0 - 3	Database Search	VOC, SOC
4, 22	LUST - Site Cleanup Completed , Impact: Unknown, UST - closed	0 - 3	Database Search	VOC, SOC
5, 23	LUST - Site Cleanup Completed , Impact: Unknown, UST - closed	0 - 3	Database Search	VOC, SOC
6, 24	LUST - Site Cleanup Completed , Impact: GROUND WATER, UST - closed	0 - 3	Database Search	VOC, SOC
7, 28	LUST - Site Cleanup Completed , Impact: Unknown, UST - open	0 - 3	Database Search	VOC, SOC
8, 29, 70	LUST - Site Cleanup Completed , Impact: Unknown, UST - closed, Oils-Fuel (Wholesale)	0 - 3	Database Search	VOC, SOC
9, 33	LUST - Site Cleanup Completed , Impact: Unknown, UST - closed	0 - 3	Database Search	IOC, VOC, SOC
10, 35	LUST - Site Cleanup Completed , Impact: Unknown, UST - closed	0 - 3	Database Search	VOC, SOC
11, 37	LUST - Site Cleanup Completed , Impact: Unknown, UST - open	0 - 3	Database Search	VOC, SOC
12	LUST - Site Cleanup Completed , Impact: Unknown	0 - 3	Database Search	VOC, SOC
13, 44	LUST - Site Cleanup Completed , Impact: Unknown, UST - closed	0 - 3	Database Search	VOC, SOC
14, 52	LUST - Site Cleanup Completed , Impact: Unknown, UST - closed	0 - 3	Database Search	VOC, SOC
15, 54	LUST - Site Cleanup Completed , Impact: Unknown, UST - closed	0 - 3	Database Search	VOC, SOC
16	LUST - Site Cleanup Completed , Impact: Unknown	0 - 3	Database Search	IOC, VOC, SOC
17	UST - open	0 - 3	Database Search	VOC, SOC
18	UST - closed	0 - 3	Database Search	IOC, VOC, SOC
20	UST - closed	0 - 3	Database Search	IOC, VOC, SOC, Microbes
25	UST - closed	0 - 3	Database Search	VOC, SOC
26	UST - closed	0 - 3	Database Search	VOC, SOC
27	UST - open	0 - 3	Database Search	VOC, SOC
30	UST - closed	0 - 3	Database Search	VOC, SOC
31	UST - closed	0 - 3	Database Search	VOC, SOC
32, 140	UST - closed, Automobile Dealers-New Cars	0 - 3	Database Search	VOC, SOC
34	UST - closed	0 - 3	Database Search	VOC, SOC
36, 164	UST - open, SARA site	0 - 3	Database Search	IOC, VOC, SOC
38	UST - open	0 - 3	Database Search	VOC, SOC
39, 67	UST - closed, Movers	0 - 3	Database Search	VOC, SOC
41	UST - closed	0 - 3	Database Search	VOC, SOC
42	UST - closed	0 - 3	Database Search	IOC, VOC, SOC
43	UST - closed	0 - 3	Database Search	IOC, VOC, SOC

Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
45	UST - open	0 - 3	Database Search	VOC, SOC
46	UST - closed	0 - 3	Database Search	VOC, SOC
47	UST - closed	0 - 3	Database Search	VOC, SOC
48	UST - closed	0 - 3	Database Search	VOC, SOC
49	UST - closed	0 - 3	Database Search	VOC, SOC
50, 106	UST - closed, Ambulance Service	0 - 3	Database Search	IOC, VOC, SOC, Microbes
51	UST - closed	0 - 3	Database Search	IOC, VOC, SOC
53	UST - closed	0 - 3	Database Search	VOC, SOC
55	UST - closed	0 - 3	Database Search	VOC, SOC
56	UST - closed	0 - 3	Database Search	VOC, SOC
57	UST - closed	0 - 3	Database Search	VOC, SOC
58	UST - open	0 - 3	Database Search	VOC, SOC
59, 161	UST - open, SARA site	0 - 3	Database Search	VOC, SOC
60	UST - closed	0 - 3	Database Search	IOC, VOC, SOC
61	UST - open	0 - 3	Database Search	VOC
62	Automobile Parts-Used & Rebuilt	0 - 3	Database Search	IOC, VOC, SOC
63	Livestock Breeders	0 - 3	Database Search	IOC, SOC, Microbes
64	Automobile Dealers-Used Cars	0 - 3	Database Search	IOC, VOC, SOC
65	Tree Service	0 - 3	Database Search	IOC, SOC, Microbes
66	Batteries-Storage-Retail	0 - 3	Database Search	IOC
68	Tire-Dealers-Retail	0 - 3	Database Search	VOC, SOC
69	Landscape Contractors	0 - 3	Database Search	IOC, SOC, Microbes
71	General Contractors	0 - 3	Database Search	IOC, VOC, SOC
72	Contractors-Equipment & Supls-Repair	0 - 3	Database Search	IOC, VOC, SOC
73	Fire Departments	0 - 3	Database Search	VOC, SOC
74	Automobile Radiator-Repairing	0 - 3	Database Search	IOC, VOC, SOC
75	Commercial Printing NEC	0 - 3	Database Search	IOC, VOC
76	Water Treatment Equip Svc & Supls	0 - 3	Database Search	IOC
77	General Contractors	0 - 3	Database Search	IOC, VOC, SOC
78	Recreational Vehicles-Renting & Leasing	0 - 3	Database Search	VOC, SOC
79	Automobile Parts & Supplies-Retail	0 - 3	Database Search	IOC, VOC, SOC
80	Electric Equipment & Supplies-Wholesale	0 - 3	Database Search	IOC, VOC
81	Automobile Body-Repairing & Painting	0 - 3	Database Search	IOC, VOC, SOC
82	Automobile Dealers-Used Cars	0 - 3	Database Search	IOC, VOC, SOC
83	Brake Service	0 - 3	Database Search	IOC, VOC, SOC
84	Cleaners	0 - 3	Database Search	VOC
85	General Contractors	0 - 3	Database Search	IOC, VOC, SOC
86	Laboratories-Dental	0 - 3	Database Search	IOC, Microbes
87	Automobile Body Shop Equip/Supls	0 - 3	Database Search	IOC, VOC, SOC
88	Aerial Applicators	0 - 3	Database Search	IOC, VOC, SOC, Microbes
89	Automobile Body-Repairing & Painting	0 - 3	Database Search	IOC, VOC, SOC
90, 149	Truck-Repairing & Service, RCRA site	0 - 3	Database Search	IOC, VOC, SOC
91	Automobile Body-Repairing & Painting	0 - 3	Database Search	IOC, VOC, SOC
92	Funeral Directors	0 - 3	Database Search	IOC, SOC, Microbes
93	Photographers-Portrait	0 - 3	Database Search	IOC, VOC
94	Carpet & Rug Cleaners	0 - 3	Database Search	VOC
95	Hydraulic Equipment-Repairing	0 - 3	Database Search	IOC, VOC, SOC

Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
96	Water Treatment Equip Svc & Supls	0 - 3	Database Search	IOC
97	Home Improvements	0 - 3	Database Search	IOC, VOC, SOC
98	Farms	0 - 3	Database Search	IOC, SOC, Microbes
99	Motorcycles & Motor Scooters-Rpr	0 - 3	Database Search	IOC, VOC, SOC
100	Excavating Contractors	0 - 3	Database Search	IOC, VOC, SOC
101	Boat Equipment & Supplies	0 - 3	Database Search	IOC, VOC, SOC
102	Automobile Dealers-Used Cars	0 - 3	Database Search	IOC, VOC, SOC
103	Farms	0 - 3	Database Search	IOC, SOC, Microbes
104	Automobile Parts & Supplies-Retail	0 - 3	Database Search	IOC, VOC, SOC
105	Cleaners	0 - 3	Database Search	VOC
107	Building Contractors	0 - 3	Database Search	IOC, VOC, SOC
108	Truck-Repairing & Service	0 - 3	Database Search	IOC, VOC, SOC
109	Food Processors & Manufacturers	0 - 3	Database Search	IOC, SOC, Microbes
110	Automobile Dealers-Used Cars	0 - 3	Database Search	IOC, VOC, SOC
111	Storage-Household & Commercial	0 - 3	Database Search	IOC, VOC, SOC, Microbes
112	Service Stations-Gasoline & Oil	0 - 3	Database Search	VOC, SOC
113	General Contractors	0 - 3	Database Search	IOC, VOC, SOC
114	Automobile Body-Repairing & Painting	0 - 3	Database Search	IOC, VOC, SOC
115	Automobile & Truck Brokers	0 - 3	Database Search	VOC, SOC
116	Funeral Directors	0 - 3	Database Search	IOC, SOC, Microbes
117	Farm Equipment (Wholesale)	0 - 3	Database Search	VOC, SOC
118	Boat Dealers	0 - 3	Database Search	VOC, SOC
119	Motorcycles & Motor Scooters-Rpr	0 - 3	Database Search	IOC, VOC, SOC
120	Automobile Repairing & Service	0 - 3	Database Search	IOC, VOC, SOC
121	Wrecker Service	0 - 3	Database Search	IOC, VOC, SOC
122	Bicycles-Dealers	0 - 3	Database Search	VOC
123	General Contractors \+ 123,218	0 - 3	Database Search	IOC, VOC, SOC
124	Automobile Repairing & Service	0 - 3	Database Search	IOC, VOC, SOC
125	Storage-Household & Commercial	0 - 3	Database Search	IOC, VOC, SOC, Microbes
126, 150	Cleaners, RCRA site	0 - 3	Database Search	VOC
127	Truck-Repairing & Service	0 - 3	Database Search	IOC, VOC, SOC
128	Hardware-Retail	0 - 3	Database Search	IOC, VOC, SOC
129	Newspapers (Publishers)	0 - 3	Database Search	IOC, VOC
130, 156	Service Stations-Gasoline & Oil, SARA site	0 - 3	Database Search	VOC, SOC
131	Dairies	0 - 3	Database Search	IOC, SOC, Microbes
132	Parking Area Maintenance & Marking	0 - 3	Database Search	IOC, VOC, SOC
133	Photographers-Commercial	0 - 3	Database Search	IOC, VOC
134	Motorcycles & Motor Scooters-Dealer	0 - 3	Database Search	VOC, SOC
135	Irrigation Systems & Equipment-Mfr	0 - 3	Database Search	IOC, VOC, SOC
136	Truck Renting & Leasing	0 - 3	Database Search	VOC, SOC
137	Commercial Printing NEC	0 - 3	Database Search	IOC, VOC
138	Delivery Service	0 - 3	Database Search	VOC, SOC
139	Storage-Household & Commercial	0 - 3	Database Search	IOC, VOC, SOC, Microbes
141	NPDES site - municipal	0 - 3	Database Search	IOC, Microbes
142	NPDES site - industrial	0 - 3	Database Search	IOC, Microbes
143	Toxic Release Inventory site	0 - 3	Database Search	IOC, SOC
144	CERCLA	0 - 3	Database Search	IOC, VOC, SOC

Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
145	CERCLA	0 - 3	Database Search	IOC, VOC, SOC
146	RCRA site	0 - 3	Database Search	IOC, VOC, SOC
148	RCRA site	0 - 3	Database Search	IOC, VOC, Microbes
151	Sand and gravel pit	0 - 3	Database Search	IOC
152	Sand and gravel pit	0 - 3	Database Search	IOC
153	Sand and gravel pit	0 - 3	Database Search	IOC
154	SARA site	0 - 3	Database Search	IOC, SOC, Microbes
155	SARA site	0 - 3	Database Search	IOC, VOC, SOC
157	SARA site	0 - 3	Database Search	IOC, VOC, SOC
158	SARA site	0 - 3	Database Search	IOC, SOC, Microbes
159	SARA site	0 - 3	Database Search	VOC, SOC
160	SARA site	0 - 3	Database Search	VOC, SOC
162	SARA site	0 - 3	Database Search	VOC, SOC
163	SARA site	0 - 3	Database Search	VOC, SOC
165	LUST - Site Cleanup Completed , Impact: Unknown	3 - 6	Database Search	VOC, SOC
166, 175	LUST - Site Cleanup Completed , Impact: Unknown, UST - closed	3 - 6	Database Search	IOC, VOC, SOC, Microbes
167	LUST - Site Cleanup Completed , Impact: Unknown	3 - 6	Database Search	VOC, SOC
168	LUST - Site Cleanup Incomplete , Impact: Unknown	3 - 6	Database Search	VOC, SOC
169	UST - open	3 - 6	Database Search	VOC, SOC
170	UST - closed	3 - 6	Database Search	VOC, SOC
171	UST - open	3 - 6	Database Search	VOC, SOC
172	UST - closed	3 - 6	Database Search	VOC, SOC
173	UST - closed	3 - 6	Database Search	VOC, SOC
174	UST - closed	3 - 6	Database Search	VOC, SOC
176	UST - open	3 - 6	Database Search	VOC, SOC
177	Dairy<=200 cows	3 - 6	Database Search	IOC, SOC
178	Florists-Wholesale	3 - 6	Database Search	IOC, SOC
179	RCRA site	3 - 6	Database Search	IOC, VOC, SOC
180	Sand and gravel pit	3 - 6	Database Search	IOC
181	Gold mine	3 - 6	Database Search	IOC, VOC, SOC
182	SARA site	3 - 6	Database Search	IOC, VOC, SOC
183	Group 1 - pesticide	3 - 6	Database Search	SOC
184	Group 1 - nitrate	3 - 6	Database Search	IOC
185, 186	LUST - Site Cleanup Incomplete , Impact: GROUND WATER, UST - closed	6 - 10	Database Search	VOC, SOC
187	Dairy <=200 cows	6 - 10	Database Search	IOC, SOC
188	Dairy <=200 cows	6 - 10	Database Search	IOC, SOC
189, 192	SARA site, AST	6 - 10	Database Search	VOC, SOC
190	SARA site	6 - 10	Database Search	VOC, SOC
191	SARA site	6 - 10	Database Search	VOC, SOC
193	AST	6 - 10	Database Search	VOC, SOC
194	Group 1 - nitrate	6 - 10	Database Search	IOC
195	Group 1 - nitrate	6 - 10	Database Search	IOC

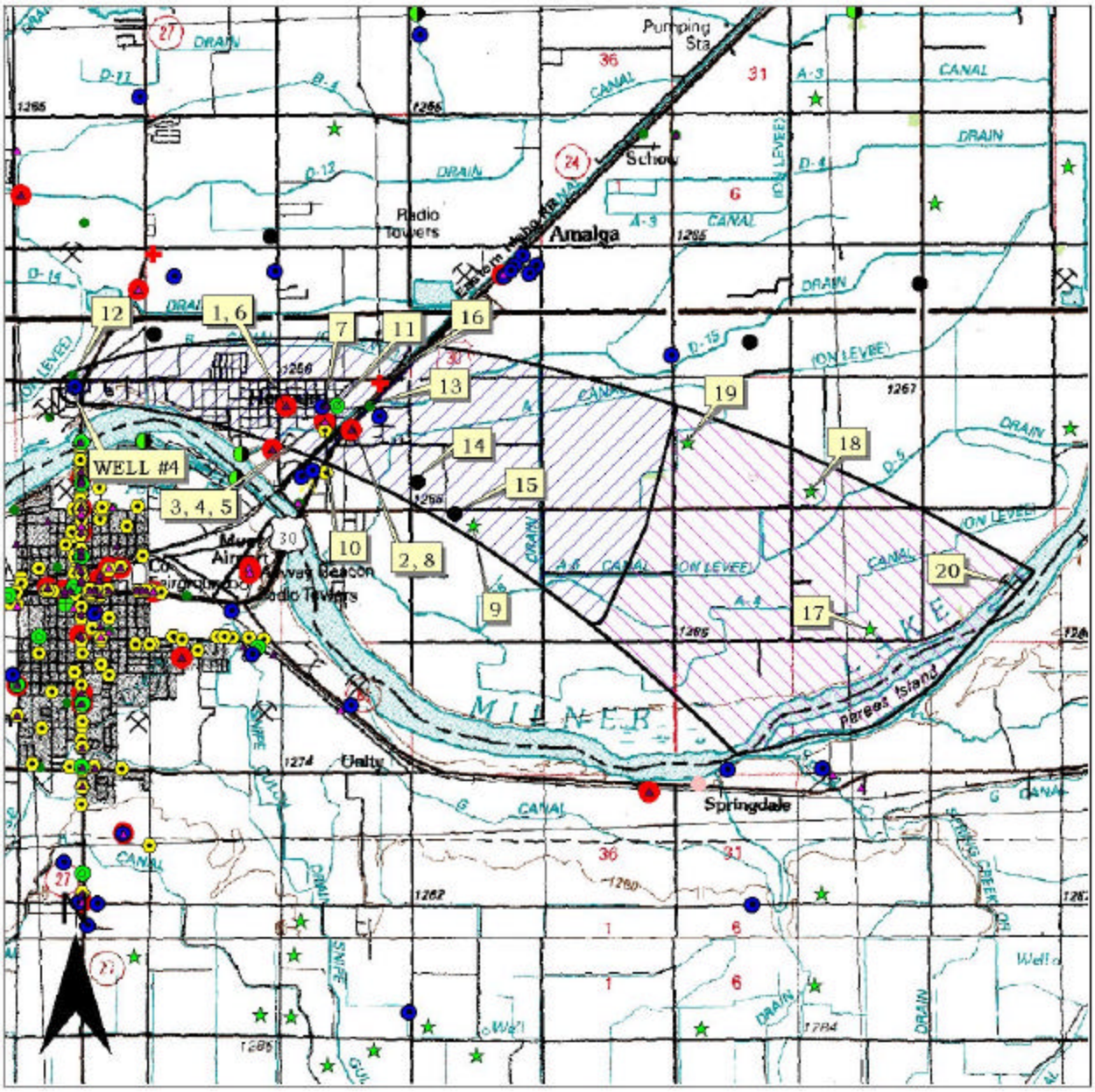
Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
	Highway 30	0-10	GIS Map	IOC, VOC, SOC, Microbes
	State Highway 81	0-10	GIS Map	IOC, VOC, SOC, Microbes
	Eastern Idaho Railroad	0-10	GIS Map	IOC, VOC, SOC, Microbes
	Snake River	0-10	GIS Map	IOC, VOC, SOC, Microbes

[1] LUST = leaking underground storage tank, UST = underground storage tank, AST = above ground storage tank, SARA = Superfund Amendments and Reauthorization Act, NPDES = National Pollutant Discharge Elimination System, CERCLA = Comprehensive Environmental Response Compensation and Liability Act, RCRA = Resource Conservation Recovery Act

[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Figure 3. Burley Water Department Delineation Map and Potential Contaminant Source Locations



PWS# 5160008

WELL #4

Table 2. City of Burley, Well #4, Potential Contaminant Inventory

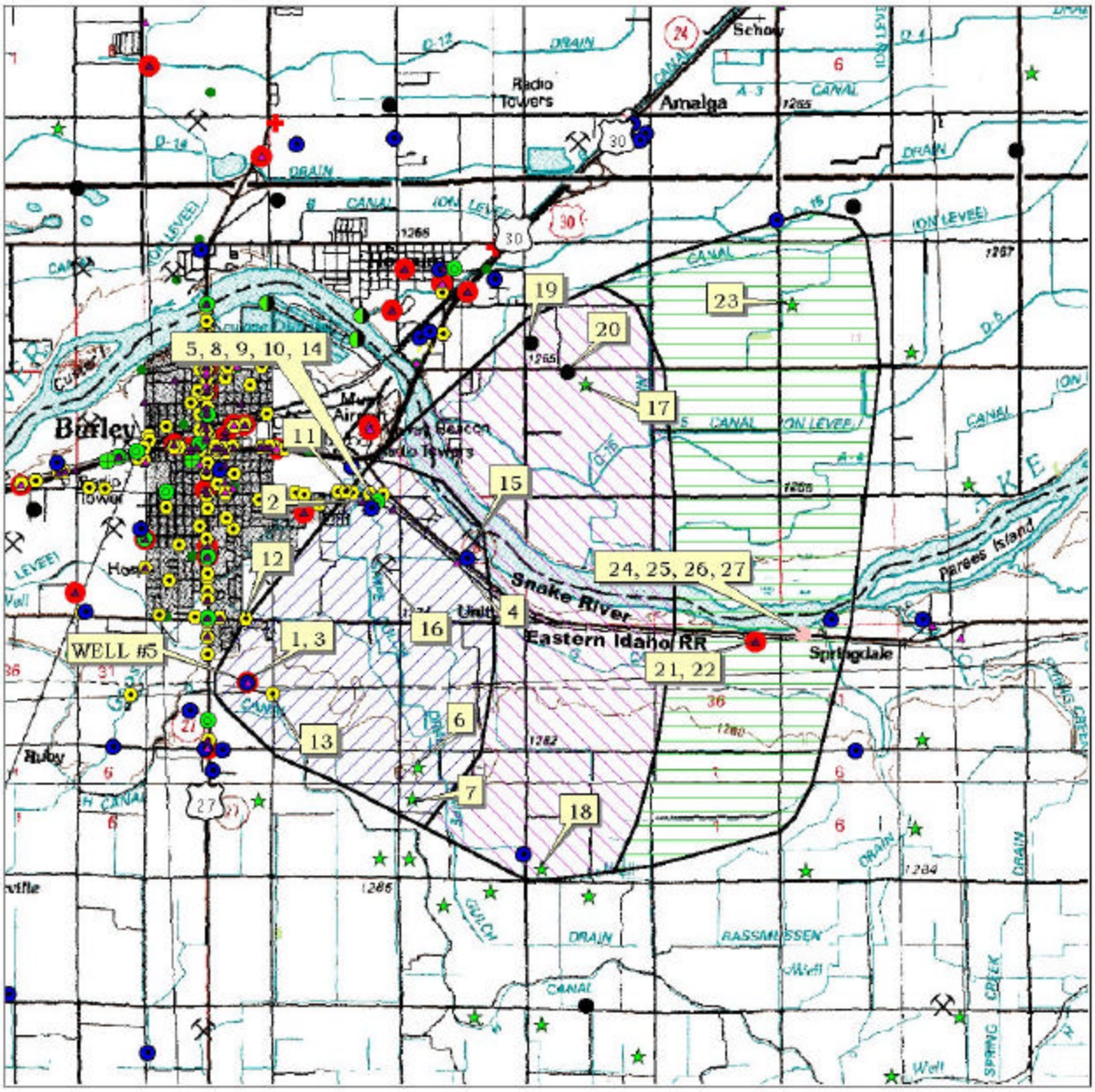
Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
1, 6	LUST - Site Cleanup Completed , Impact: Unknown, UST - closed	0-3	Database Search	VOC, SOC
2, 8	LUST - Site Cleanup Completed , Impact: Unknown, UST - closed	0-3	Database Search	IOC, VOC, SOC
3	LUST - Site Cleanup Completed , Impact: Unknown	0-3	Database Search	VOC, SOC
4	UST – open	0-3	Database Search	VOC, SOC
5	UST – closed	0-3	Database Search	VOC, SOC
7	UST – closed	0-3	Database Search	VOC, SOC
9	Dairy <=200 cows	0-3	Database Search	IOC, SOC, Microbes
10	Florists – Wholesale	0-3	Database Search	IOC, SOC, Microbes
11	RCRA Site	0-3	Database Search	IOC, VOC, SOC
12	SARA Site	0-3	Database Search	IOC, VOC, SOC
13	SARA Site	0-3	Database Search	IOC, VOC, SOC
14	Group 1 - pesticides	0-3	Database Search	SOC
15	Group 1 - nitrate	0-3	Database Search	IOC
16	Gas Station/Convenience Store	0-3	Enhanced Inventory	VOC, SOC
17	Dairy <=200 cows	3-6	Database Search	IOC, SOC
18	Dairy <=200 cows	3-6	Database Search	IOC, SOC
19	Dairy <=200 cows	3-6	Database Search	IOC, SOC
20	Gold mine	3-6	Database Search	IOC, VOC, SOC
	Highway 30	0-3	GIS Map	IOC, VOC, SOC, Microbes
	Eastern Idaho Railroad	0-3	GIS Map	IOC, VOC, SOC, Microbes
	Snake River	6-10	GIS Map	IOC, VOC, SOC, Microbes

[1] LUST = leaking underground storage tank, UST = underground storage tank, SARA = Superfund Amendments and Reauthorization Act, RCRA = Resource Conservation Recovery Act

[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Figure 4. City of Burley Delineation Map and Potential Contaminant Source Locations



IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

PWS# 5160008

WELL #5

Table 3. City of Burley, Well #5, Potential Contaminant Inventory

Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
1, 3	LUST - Site Cleanup Completed , Impact: Unknown, UST - open	0-3	Database Search	VOC, SOC
2	UST – closed	0-3	Database Search	VOC, SOC
4	UST – open	0-3	Database Search	VOC, SOC
5	UST – closed	0-3	Database Search	VOC, SOC
6	Dairy <=200 cows	0-3	Database Search	IOC, SOC, Microbes
7	Dairy <=200 cows	0-3	Database Search	IOC, SOC, Microbes
8	General Contractor	0-3	Database Search	IOC, VOC, SOC
9	Excavating Contractor	0-3	Database Search	IOC, VOC, SOC
10	Building Contractors	0-3	Database Search	IOC, VOC, SOC
11	Food Processing & Manufacturers	0-3	Database Search	IOC, VOC, SOC
12	Seed Cleaning	0-3	Database Search	IOC, SOC, Microbes
13	Weed Control Service	0-3	Database Search	IOC, SOC
14	RCRA Site	0-3	Database Search	IOC, VOC, SOC
15	Gold mine	0-3	Database Search	IOC, VOC, SOC
16	Sand and gravel pit	0-3	Database Search	IOC
17	Dairy <=200 cows	3-6	Database Search	IOC, SOC
18	Dairy <=200 cows	3-6	Database Search	IOC, SOC
19	Group 1 – pesticide	3-6	Database Search	SOC
20	Group 1 – nitrate	3-6	Database Search	IOC
21, 22	LUST - Site Cleanup Incomplete , Impact: GROUND WATER, UST - closed	6-10	Database Search	VOC, SOC
23	Dairy <=200 cows	6-10	Database Search	IOC, SOC
24, 26	SARA site, AST	6-10	Database Search	VOC, SOC
25, 27	SARA site, AST	6-10	Database Search	VOC, SOC
	State Highway 81	0-10	GIS Map	IOC, VOC, SOC, Microbes
	Eastern Idaho Railroad	0-10	GIS Map	IOC, VOC, SOC, Microbes
	Snake River	0-10	GIS Map	IOC, VOC, SOC, Microbes

[1] LUST = leaking underground storage tank, UST = underground storage tank, SARA = Superfund Amendments and Reauthorization Act, RCRA = Resource Conservation Recovery Act, AST = above ground storage tank
[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Attachment B

City of Burley
Susceptibility Analysis
Worksheets

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report Public Water System Name : BURLEY WATER DEPT Well# : WELL #2 14&ALB

Public Water System Number 5160008 08/15/2001 10:23:09 AM

1. System Construction		SCORE
Drill Date	07/11/1986	
Driller Log Available	YES	
Sanitary Survey (if yes, indicate date of last survey)	YES	1997
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	YES	0
Casing and annular seal extend to low permeability unit	NO	2
Highest production 100 feet below static water level	YES	0
Well located outside the 100 year flood plain	YES	0
	Total System Construction Score	3

2. Hydrologic Sensitivity		
Soils are poorly to moderately drained	YES	0
Vadose zone composed of gravel, fractured rock or unknown	NO	0
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	YES	0
	Total Hydrologic Score	1

3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND		2	2	2	2
Farm chemical use high	YES		2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO		NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A			4	2	4	2
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES		86	122	121	24
(Score = # Sources X 2) 8 Points Maximum			8	8	8	8
Sources of Class II or III leacheable contaminants or	YES		18	54	14	
4 Points Maximum			4	4	4	
Zone 1B contains or intercepts a Group 1 Area	YES		2	0	2	0
Land use Zone 1B	25 to 50% Irrigated Agricultural Land		2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B			16	14	16	10
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present	YES		2	2	2	
Sources of Class II or III leacheable contaminants or	YES		1	1	1	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land		2	2	2	
Potential Contaminant Source / Land Use Score - Zone II			5	5	5	0
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present	YES		1	1	1	
Sources of Class II or III leacheable contaminants or	YES		1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES		1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III			3	3	3	0
Cumulative Potential Contaminant / Land Use Score			28	24	28	12
4. Final Susceptibility Source Score			10	9	10	8
5. Final Well Ranking			Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility Report Public Water System Name BURLEY WATER DEPT Well# : WELL

Public Water System Number 5160008 08/15/2001 10:23:24 AM

1. System Construction		SCORE				
Drill Date	09/26/1960					
Driller Log Available	YES					
Sanitary Survey (if yes, indicate date of last survey)	YES	1997				
Well meets IDWR construction standards	NO	1				
Wellhead and surface seal maintained	YES	0				
Casing and annular seal extend to low permeability unit	NO	2				
Highest production 100 feet below static water level	YES	0				
Well located outside the 100 year flood plain	YES	0				
Total System Construction Score		3				
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	YES	0				
Vadose zone composed of gravel, fractured rock or unknown	NO	0				
Depth to first water > 300 feet	NO	1				
Aquitard present with > 50 feet cumulative thickness	YES	0				
Total Hydrologic Score		1				
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score	
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2	
Farm chemical use high	YES	2	0	2		
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO	
Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	4	2	
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES	86	122	121	24	
(Score = # Sources X 2) 8 Points Maximum		8	8	8	8	
Sources of Class II or III leacheable contaminants or	YES	18	54	14		
4 Points Maximum		4	4	4		
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	2	0	
Land use Zone 1B	25 to 50% Irrigated Agricultural Land	2	2	2	2	
Total Potential Contaminant Source / Land Use Score - Zone 1B		16	14	16	10	
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present	YES	2	2	2		
Sources of Class II or III leacheable contaminants or	YES	1	1	1		
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2		
Potential Contaminant Source / Land Use Score - Zone II		5	5	5	0	
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present	YES	1	1	1		
Sources of Class II or III leacheable contaminants or	YES	1	1	1		
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1		
Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0	
Cumulative Potential Contaminant / Land Use Score		28	24	28	12	
4. Final Susceptibility Source Score		10	9	10	8	
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate	

Ground Water Susceptibility Report Public Water System Name : BURLEY WATER DEPT Well# : WELL #4

Public Water System Number 5160008 08/15/2001 6:59:18 AM

1. System Construction		SCORE				
Drill Date		10/20/1960				
Driller Log Available		YES				
Sanitary Survey (if yes, indicate date of last survey)		YES	1997			
Well meets IDWR construction standards		NO	1			
Wellhead and surface seal maintained		YES	0			
Casing and annular seal extend to low permeability unit		NO	2			
Highest production 100 feet below static water level		NO	1			
Well located outside the 100 year flood plain		YES	0			
Total System Construction Score			4			
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained		YES	0			
Vadose zone composed of gravel, fractured rock or unknown		NO	0			
Depth to first water > 300 feet		NO	1			
Aquitard present with > 50 feet cumulative thickness		YES	0			
Total Hydrologic Score			1			
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND		2	2	2	2
Farm chemical use high		YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A		NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A			4	2	4	2
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)		YES	10	12	15	5
(Score = # Sources X 2) 8 Points Maximum			8	8	8	8
Sources of Class II or III leacheable contaminants or		YES	10	10	6	
4 Points Maximum			4	4	4	
Zone 1B contains or intercepts a Group 1 Area		YES	2	0	2	0
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land		4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B			18	16	18	12
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present		YES	2	2	2	
Sources of Class II or III leacheable contaminants or		YES	1	1	1	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land		2	2	2	
Potential Contaminant Source / Land Use Score - Zone II			5	5	5	0
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present		YES	1	1	1	
Sources of Class II or III leacheable contaminants or		YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of		NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III			2	2	2	0
Cumulative Potential Contaminant / Land Use Score			29	25	29	14
4. Final Susceptibility Source Score			11	10	11	10
5. Final Well Ranking			Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility Report Public Water System Name : BURLEY WATER DEPT Well# : WELL #5

Public Water System Number 5160008 08/15/2001 6:59:31 AM

1. System Construction			SCORE			
Drill Date		03/14/1977				
Driller Log Available		YES				
Sanitary Survey (if yes, indicate date of last survey)		YES	1997			
Well meets IDWR construction standards		NO	1			
Wellhead and surface seal maintained		YES	0			
Casing and annular seal extend to low permeability unit		NO	2			
Highest production 100 feet below static water level		YES	0			
Well located outside the 100 year flood plain		YES	0			
Total System Construction Score			3			
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained		YES	0			
Vadose zone composed of gravel, fractured rock or unknown		NO	0			
Depth to first water > 300 feet		NO	1			
Aquitard present with > 50 feet cumulative thickness		YES	0			
Total Hydrologic Score			1			
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A		IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high		YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A		NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A			4	2	4	2
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)		YES	14	13	17	6
(Score = # Sources X 2) 8 Points Maximum			8	8	8	8
Sources of Class II or III leacheable contaminants or		YES	11	8	7	
4 Points Maximum			4	4	4	
Zone 1B contains or intercepts a Group 1 Area		YES	2	0	2	0
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land		4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B			18	16	18	12
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present		YES	2	2	2	
Sources of Class II or III leacheable contaminants or		YES	1	1	1	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land		2	2	2	
Potential Contaminant Source / Land Use Score - Zone II			5	5	5	0
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present		YES	1	1	1	
Sources of Class II or III leacheable contaminants or		YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of		YES	1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III			3	3	3	0
Cumulative Potential Contaminant / Land Use Score			30	26	30	14
4. Final Susceptibility Source Score			10	9	10	9
5. Final Well Ranking			Moderate	Moderate	Moderate	Moderate